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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :

NOBUO FUJIHARA :

SERIAL NO: NEW U.S. PCT APPLN. : ATTN: APPLICATION BRANCH  
(Based on PCT/JP01/02953)

FILED: HEREWITH :

FOR: MULTIPLEX COMMUNICATION  
SYSTEM AND ITS SIGNAL  
PROCESSING METHOD

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS  
WASHINGTON, D.C. 20231

SIR:

Prior to a first examination on the merits, please amend the above-identified  
application as follows:

IN THE CLAIMS

Please amend the claims as shown in the marked-up copy attached to read as follows:

2. (Amended) The multiplex communication system according to claim 1, wherein  
said scaling calculation means calculates the scaling factor from an effective value of  
amplitudes of an in-phase component and a quadrature component of the digital multiplex  
signal and from a digital conversion value of the amplitude range suitable for the signal  
processing of said quadrature modulation means, the digital multiplex signal being generated  
by data modulation followed by direct sequence CDMA modulation of coded transmission  
data of multiple channels by said digital modulation means.

3. (Amended) The multiplex communication system according to claim 2, wherein said scaling calculation means calculates the scaling factor by

$$S = \text{INT}\{\log_2 (D/Z)\}$$

where S is the scaling factor,

INT is a function for taking an integer value,

Z is the effective value of the digital multiplex signal, and

D is the digital conversion value,

and supplies the scaling factor to said scaling control means as a scaling control signal, and wherein said scaling control means shifts up by S bits the digital multiplex signal consisting of the in-phase component and quadrature component generated by said digital modulation means when the scaling control signal is positive, and shifts down by the S bits the digital multiplex signal consisting of the in-phase component and quadrature component generated by said digital modulation means when the scaling control signal is negative.

4. (Amended) The multiplex communication system according to claim 3, wherein said scaling calculation means provides the digital conversion value D with a hysteresis characteristic, and carries out S-bit shift up or down of the digital multiplex signal composed of the in-phase component and quadrature component generated by said digital modulation means.

#### IN THE ABSTRACT

Please amend the Abstract page 5 as follows:

#### ABSTRACT OF THE DISCLOSURE

A multiplex communication system includes a scaling circuit for controlling, in response to a scaling control signal, the signal level of a digital multiplex signal generated by

a modulation circuit; a variable attenuation circuit for attenuating the signal level of the RF signal output from a quadrature modulation circuit in response to an attenuation control signal; a scaling calculation circuit for generating a scaling control signal in response to the effective value of the digital multiplex signal generated by the digital modulation circuit and in accordance with a digital conversion value corresponding to a desired input level of the quadrature modulation circuit, and for supplying its output to the scaling circuit; and a control signal generating circuit for generating an attenuation control signal in response to the scaling control signal, and for supplying it to the variable attenuation circuit.

#### REMARKS

Favorable consideration of this application, as presently amended, is respectfully requested.

The present preliminary amendment is submitted to correct for minor informalities in the claims by clarifying antecedent basis for the claim terms. The Abstract has also been amended by the present response to correct minor informalities.

The changes made to the claims and Abstract are deemed to be self-evident from the original disclosure, and thus are not deemed to raise any issues of new matter.

The present application is believed to be in condition for a full and thorough examination on the merits. An early and favorable consideration of the present application is hereby respectfully requested.

Respectfully submitted,

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| <b>Marked-Up Copy</b><br>Serial No:<br><br>Amendment Filed on:<br><u>12-5-2001</u> |
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IN THE CLAIMS

Please amend the claims as follows:

--2. (Amended) The multiplex communication system according to claim 1, wherein said scaling calculation means [said control signal generating means] calculates the scaling factor from an effective value of amplitudes of an in-phase component and a quadrature component of the digital multiplex signal and from a digital conversion value of the amplitude range suitable for the signal processing of said quadrature modulation means, the digital multiplex signal being generated by data modulation followed by direct sequence CDMA modulation of coded transmission data of multiple channels by said digital modulation means.

3. (Amended) The multiplex communication system according to claim 2, wherein said scaling calculation means [said control signal generating means] calculates the scaling factor by

$$S = \text{INT} \{ \log_2 (D/Z) \}$$

where S is the scaling factor,

INT is a function for taking an integer value,

Z is the effective value of the digital multiplex signal, and

D is the digital conversion value,

and supplies the scaling factor to said scaling control means as a scaling control signal, and wherein said scaling control means shifts up by S bits the digital multiplex signal consisting of the in-phase component and quadrature component generated by said digital modulation means when the scaling control signal is positive, and shifts down by the S bits the digital multiplex signal consisting of the in-phase component and quadrature component generated by said digital modulation means when the scaling control signal is negative.

4. (Amended) The multiplex communication system according to claim 3, wherein said scaling calculation means provides the digital conversion value D with a hysteresis characteristic, and carries out S-bit shift up or down on the digital multiplex signal composed of the in-phase component and quadrature component generated by said digital modulation means.--

#### IN THE ABSTRACT

Please amend the Abstract page 5 as follows:

#### --ABSTRACT OF THE DISCLOSURE

A multiplex communication system includes a scaling circuit for controlling, in response to a scaling control signal, the signal level of a digital multiplex signal [digital] generated by a modulation circuit; a variable attenuation circuit for attenuating the signal level of the RF signal output from a quadrature modulation circuit in response to an attenuation control signal; [and a control signal generating circuit] a scaling calculation circuit for generating a scaling control signal in response to the effective value of the digital multiplex signal generated by the digital modulation circuit and in accordance with a digital conversion value corresponding to a desired input level of the quadrature modulation circuit, and for supplying its output to the scaling circuit[,]; and a control signal generating circuit for

generating an attenuation control signal in response to the scaling control signal, and for supplying it to the variable attenuation circuit.--